

Date: Tue, 16 Aug 94 04:30:17 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #263
To: Ham-Ant

Ham-Ant Digest Tue, 16 Aug 94 Volume 94 : Issue 263

Today's Topics:

 6'x 9' chimney strap?
 ftp's for antenna design needed
 how to build a single band vertical?
 Should feedline length change the VSWR? (2 msgs)

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Mon, 15 Aug 1994 13:43:25 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!dancer.ca.sandia.gov!cronkite.nersc.gov!osi-
east2.es.net!lll-winken.llnl.gov!elroy.jpl.nasa.gov!usc!howland.reston.ans.net!
gatech!wa4mei!@ihnp4.ucsd.edu
Subject: 6'x 9' chimney strap?
To: ham-ant@ucsd.edu

In article <32lrn4\$im4@odin.cc.pdx.edu> a2pc@odin.cc.pdx.edu (Micro Demo Lab)
writes:

>I've got a 25' flue on top of an 11 story apt. bldg.,
>and want to strap a mast & rotor for a KT-34A
>tribander.
>I'd like the mast to start at about 12' above the roof
>level and be stout enough to support me on step bolts.
>Ideally, a non-penetrating system and no contact with
>the roof is what I envision.
>The question: does anyone know of a ratcheting chimney
>strap that would fit the bill?
>To be able to climb the mast, I would need some sort

>of spacer and positioning it on a corner with some type
>of angle iron brace would hopefully provide the support.
>
>Any feedback would be most welcome.

A note of caution. Masonry has great strength in compression, but very little in shear. If you are going to add a moment arm to the structure that places shear forces on the masonry, you must do a proper structural analysis to determine if the chimney will need structural bracing to withstand the side loads.

A back of envelope guess says that you will. While I can't offer structural engineering services by remote control, I'll make a suggestion you can run by your structural engineer. I'd put 4 inch angle iron on all four corners of the chimney, connected together with torsion clamps. Then you could probably safely mount your mast to one of the corners as you propose. I'd use threaded rod clamps rather than flexible strapping.

Let me reiterate the importance of getting proper structural advice on this. At the height above ground this structure will be, falling brick could be a *deadly* hazard. And you'll be held liable, criminally so if you don't have a PE sign off on this. Your insurance won't cover you either unless this installation is done following codes and good engineering practice.

Sorry to be a wet blanket, but people could be killed if this installation is done wrong.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				gary@ke4zv.atl.ga.us

Date: 15 Aug 1994 16:56:22 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!gatech!nntp.msstate.edu!olivea!
korie!male.EBay.Sun.COM!uranium!raymonda@network.ucsd.edu
Subject: ftp's for antenna design needed
To: ham-ant@ucsd.edu

In article 005997E8@ssmd.mrl.dsto.gov.au, amiet@ssmd.mrl.dsto.gov.au (A. Amiet)

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writes:
.>In article <randerCuCCFn.AqA@netcom.com> rander@netcom.com (Raymond Anderson)
.>writes:
.>
.>          ... stuff deleted ...
.>
.>
.>>You can obtain NEC2 (the real thing, "industrial strength") via anonymous
.>>ftp from:
.>>          ftp.netcom.com in /pub/rander/NEC
.>
.>>There is both source code and executables for Sun, IBM RS, Macintosh, and
.>>DOS based PC's. You will also find several NEC related utility programs
.>>there also.
.>
.>Errr....OK, tried that and even downloaded and ran nec-pc. It asks for an
.>input file. Oh. I didn't know what to tell it and so it naturally died. Could
.>you please (briefly) give a little bit of information about it and the other
.>programs on your area, such as what they do and how to make them work, as
.>readme type files are a little short on the ground.
.>
.>-a
.>
.>
.>
.>

```

The file that the program was prompting for was a NEC input file that describes the geometry of the antenna. The specification of the file format is covered in the program documentation available for purchase from the US Government.

It would be nice if someone had the time and expertise to distill the many pages of documentation down to a concise users guide for the non-expert.

I don't have the official documents myself and have been using example program files that are to be found with some of the implementations on the ftp site as a guide to create my input files.

There is a document on the ftp site that describes how to obtain the official documentation. I am including it below in this posting for general info to those who are interested.

As far as documentation on other programs and utilities are concerned, most have their own little .doc or .txt file included with them, and that is all that is available. The authors of those utilities are identified along with their e-mail addresses. Further inquiries could be made to the those addresses if necessary.

There is a NEC related mailing list at nec-list@ee.ubc.ca which is distributed to a large number of NEC users world-wide. Questions posed to that group are usually answered quite rapidly and accurately. Mail to davem@ee.ubc.ca to subscribe to the list.

Here is the info on ordering the NEC docs:

-----included file starts here-----
The following information provides the document numbers
and the address from which the official government documentation
for NEC2 may be ordered:

Numerical Electromagnetic Code (NEC) - Method of Moments

Volume I & II	NOSC TD 116	Order #	ADA 075289
Volume III	NOSC TD 116	Order #	ADA 075460

In 1994, Vol I & II was \$52 and Volume III was \$27.
Normal delivery is \$6.00 Rush fee was \$15 each (in 1992), if you

If you don't need to rush, normal parcel post arrives within the same week.

Note that the two volumes have the same NOSC numbers, but different ADA document numbers.

Order Address:

U. S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield VA 22161

Phone: (703)487-4650

(The above order information provided courtesy of Kok Chen <kchen@apple.com>)
(Updated 1994 info courtesy of Scott WB4YZA <jscott@holonet.net>)

Note:

Vol. I & II is Ops & Code
Vol. III is User Manual

-----end of included file-----

wave or 5/8 wave with ground planes. I can knife edge radio waves over mountains for 80+ mile autopatch quality contacts at 1watt with a 1/2 wave end feed verticle. (To have autopatch quality you can have some white noise but requires good audio and no multipathing)

>

>I have the antenna mounted on my truck's toolbox, which is almost in the
>center of my full size pickup truck. This antenna works very well (and
>even pulls in 2m and of course the various even multiple and fractional
>bands as well), but I'm greedy for all the reception that I can get and
>was wondering if there was anything in the way of radials or any other
>tricks that I could do to improve the reception still more.

>

>Also, can anyone theorize on what the effective difference between the
>1/2 wave and full wave antennas may be?

1/2 wave dipole 0db, 1/2 wave verticle 2db, and 5/8 wave (with ground plane) 3db gain. The 1/2 wave vert is very good. There is a type of antenna that is called a ringo. It is a verticle and can get 7 to 9db gain but it is very long and acts as an array of antennas.

Hope this helps.

>

>Thanks,

>Tad

>

>--

>--

>Tad Marko Internet: tad@jove.acs.unt.edu

>

> If you really want to help me, give me Liberty.

* * * * *

Ryan McNeilly

Internet: ryanm@u.washington.edu

KC7BYE

* * * * *

"You can't deal from a position of weakness" --Alfred Thayer Mahan
Moral: Protect the 2nd Amendment!

My comments and opinions are my own and nobody elses!!!!

Date: 15 Aug 1994 16:01:05 GMT

From: ihnp4.ucsd.edu!dog.ee.lbl.gov!overload.lbl.gov!dancer.ca.sandia.gov!

cronkite.nersc.gov!osi-east2.es.net!lll-winken.llnl.gov!elroy.jpl.nasa.gov!usc!
howland.reston.ans.net!gatech!@network
Subject: Should feedline lenght change the VSWR?
To: ham-ant@ucsd.edu

In article <32hkca\$3fq@chnews.intel.com>,
<Cecil_A_Moore@ccm.ch.intel.com> wrote:

>

>Your analyzer is probably affected by the near
>field of the antenna and will give bad readings especially if it has a
>microcomputer in it. (I'm a microcontroller jock).

Oops, Steve, AB4EL, pointed out the error of my ways here. I was assuming that the ham transmitter had to be on to make this reading. I obviously knew nothing about the Autek RF-1. Steve tells me that it has a built-in RF generator and therefore very little near-field radiation, certainly not enough to affect the microcomputer. My statement applies to any measurement attempted near the antenna with the ham transmitter power on. My apologies to Autek Research, 4143 W. Waters Ave, no. 120, Tampa, FL 33614. The RF-1 is described in Aug QST page 47 and looks like a great antenna test and tuning tool. Wish I had designed it.

73, Cecil, KG7BK, 00TC (Not speaking for Intel)

--

Intel, Corp.
5000 W. Chandler Blvd.
Chandler, AZ 85226

Date: Mon, 15 Aug 1994 14:11:44 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!dancer.ca.sandia.gov!cronkite.nersc.gov!osi-east2.es.net!lll-winken.llnl.gov!elroy.jpl.nasa.gov!usc!howland.reston.ans.net!gatech!wa4mei!@ihnp4.ucsd.edu
Subject: Should feedline lenght change the VSWR?
To: ham-ant@ucsd.edu

In article <32m4rk\$plb@jabba.cybernetics.net> ab4el@jabba.cybernetics.net (Stephen Modena) writes:

[I've deleted much of what Steve said, because I agree with most of it.]

>Now...let's turn to the idea that changing the length of the transmission
>line would change the SWR...well yes of course, in your case...it is
>almost unimaginable that the feed point of your antenna is 50 ohms
>resistive on any but a single frequency...but in fact, is probably
>never anywhere near 50 ohms over most of its operation range...and
>who knows what the reactive component is....

>
>It follows that a mismatch between the antenna
>feed point impedance and the surge (characteristic) impedance of the
>transmission line will result in the *transmission line* acting
>as an impedance *transformer*...and by definition, the nature of the
>impedance transformation is *dependant* the *length* of the coax.
>This stuff is in the ARRL Handbook briefly and in more depth in the
>Antenna Mannual.
>
>Depending on the actual degree of mismatch *and* the absolute values
>involved, it is *not* unusual for SWR values to *soar* when the
>transmission line length is at the *sharply* climbing regions of the
>Tan(h) function of impedance transformation. Solution? Lengthen or
>shorten the transmission line...or put an appropriate open-or-short
>shut about 0.1 wavelength from the antenna feed point to make the
>transmission line go flat...solutions that are easy on a single band
>but may require considerable experimentation when frequency hopping
>multiple bands is involved (as is the case of your multi-band antenna).

I don't think you intended to leave this impression, but it seems you are saying that changing coax length will change the SWR on the coax. That's false (aside from the relatively minor loss issues already addressed by others). A transmission line transformer will present a different impedance at it's generator end depending on length and frequency, but the SWR on the line is wholely dependent on the impedance of the antenna and the characteristic impedance of the line. For any given mismatch at the antenna feedpoint, at a given frequency, changing the length of the line will *not* change the SWR on that line. A look at the Smith chart shows that when using a transmission line as a transmission line transformer, you rotate around a *constant VSWR circle* to get the impedance transformation you desire. The distance around that circle is the length of line you use. The SWR is *the same* at every point along the line.

>Now let's visit what the factory rep was trying to get across to you.
>
>Why not measure at the antenna (feedpoint)?
>
>Because you are interacting with the antenna by being there...because
>if you are interested in taming SWR with a noise bridge, reading
>at the antenna will not tell (inexperienced) you very much that *you*
>know how to *use*....this is not an insult: your post makes it clear
>that you do not have enough understanding to use at-antenna readings
>to advantage....that might not be the case for Roy Lewellen or me,
>but you are the one struggling along...hence it is better to watch
>the SWR at the point where it plugs into your transmitter when
>adjusting the antenna.

More to the point, a noise bridge *does not* measure VSWR. It measures the presented impedance at that point along the transmission line transformer. You have to work backwards with the Smith chart to determine the true mismatch at the load and calculate the VSWR from that.

Even if you were to use an actual VSWR measuring instrument, such as a reflectometer, you'd still have the currents *on the outside of the coax shield* to contend with. These will upset the VSWR instrument reading. The velocity factor on the *outside* of the coax shield is near 1 while the velocity factor *inside* the coax is typically near 0.66, so the out of phase situation will vary *along the length* of the cable. In fact, a good test for RF on the *outside* of a coax cable is to take two VSWR readings at different distances along the cable. If they differ by more than can be accounted for by coax loss, you have RF on the outside of the shield. That's certainly the case here. The coax is acting as part of the antenna radiating system.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				gary@ke4zv.atl.ga.us

Date: 16 Aug 94 02:59:49 GMT
From: news-mail-gateway@ucsd.edu
To: ham-ant@ucsd.edu

References w5robert@blkbox.COM, (Robert, Wood)y
Subject : WILSON TOWERS

Anyone that used to work at WILSON or have a wilson
print that would list where WILSON tower parts were bought.
-- so I could get replacement parts.

--

73

=====

Robert Wood

WB5CRG

w5robert@blkbox.com (blkbox is NOT blackbox, inc.)

w5robert@blkbox.com@menudo.uh.edu

=====

Date: Tue, 16 Aug 1994 03:18:00 GMT
From: gumby!wmu-coyote!radams@uunet.uu.net
To: ham-ant@ucsd.edu

References <1994Aug11.172726.29098@vfl.paramax.com>, <32hhsg\$o3@chnews.intel.com>,
<32onod\$6h6@openwx.networx.com>fi
Subject : Re: Ever see a black tribander?

In article <32onod\$6h6@openwx.networx.com>,
John Hays <hays@silver.networx.com> wrote:
>Black antennas are almost invisible to neighbors too ...
>

If they're wire antennas, down in the trees... but green would be better.
A black yagi, OTOH, would stick out like a sore thumb, lt. blue is better.

Personally, I couldn't care less what my neighbours thought. I paid for my
land... they didn't. <g>

Robert
WA9ZMO

* Yagis should be mounted on stiff erections.

End of Ham-Ant Digest V94 #263
